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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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EXAMINER

KUNEMUND, ROBERT M

ART UNIT

PAPER NUMBER

1765

DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

ASB

Office Action Summary

Application No.

10/047,044

Applicant(s)

DAHL ET AL.

Examiner

Robert M Kunemund

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 59-63 and 66-88 and 90-95 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 59-63, 66-88 and 90-95 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9, 12. 6) ☐ Other: _____

DETAILED ACTION

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 59 to 63, 66, 67, 72 to 88, 90, 91, 94 and 95 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyanaga et al or Fuesser et al both in view of Shen et al.

The Fuesser et al and Miyanaga references teach a formation of a diamond film. A substrate is placed in a CVD chamber. The chamber is heated and a coupling energy is created in the source space. A gases nucleation material is flowed into the reactor and caused to deposit on the substrate. The nucleation material is a diamondiod and is sublimed prior to entry into the chamber. Then process gases can be flowed into the chamber consisting of methane, hydrogen and an inert gas, note, in Fuesser et al note

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cols. 3 and 4 and in Miyanaga note examples. The Miyanaga et al and Fuesser et al references differ from the instant claims in the type of diamondiod and nucleation rates. However, the Shen et al reference teaches that higher diamondiods have a diamond lattice structure note, page 504. It would have been obvious to one of ordinary skill in the art to modify the type of diamondiod in the Miyanaga et al or Fuesser et al references by the teachings of the Shen et al reference in order to deposit a material with the same lattices and spacing as the diamond films thus increasing nucleation rates of the films.

Claims 68 to 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyanaga et al or Fuesser et al both in view of Kulisch and Shen et al.

The Miyanaga et al, Shen et al and Fuesser et al references are relied on for the same reasons as stated, supra, and differ from the instant claims in the type of substrates. However, the Kulisch reference teaches diamond deposition on various substrates including nickel and silicon, note page135. It would have been obvious to one of ordinary skill in the art to modify the Miyanaga et al and Fuesser et al references by the teachings of the Kulisch reference to use different substrate in order to produce diamonds with different uses and characteristics.

Claims 92 and 93 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyanaga et al or Fuesser et al both in view of Gruen (B 2.3).

The Miyanaga et al and Fuesser et al references are relied on for the same reasons as stated, supra, and differ from the instant claims in the type of diamond. However, the Gruen reference teaches ultrananocrystalline diamond deposition using a

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nucleation material with the sp³ and sp², note, page 308. It would have been obvious to one of ordinary skill in the art to modify the Miyana et al and Fuesser et al references by the teachings of the Gruen reference to grow ultrananocrystalline diamonds by using the diamondiod nucleation materials since the diamondiod has the necessary sp³ and sp² characteristics.

Response to Applicants' Arguments

Applicant's arguments with respect to claims 59 to 63, 66 to 88 and 90 to 95 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert M Kunemund whose telephone number is 703-308-1091. The examiner can normally be reached on 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ben Utech can be reached on 703-308-3636. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3599 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

RMK
July 8, 2003

A handwritten signature in black ink, consisting of a stylized 'R' followed by a vertical line that curves into a loop at the top.

**ROBERT KUNEMUND
PRIMARY EXAMINER**